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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 12 1988

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: PP8E3619. Iprodione on Sweet Cherries. Evaluation of Analytical Methods and Residue Data. RCB No. 3590. MRID No. 405410-00, 405410-01

FROM: R. W. Cook, Chemist
Tolerance Petition Review Section I
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

TO: H. Jamerson, PM 43
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and

Toxicology Branch
Hazard Evaluation Division (TS-769C)

THRU: Robert S. Quick, Section Head
Tolerance Petition Review Section I
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

The petitioner, Professor G. M. Markle, National Coordinator and Dr. R. H. Kupelian, National Director, Interregional Research Project No. 4 (IR-4), State Agricultural Experiment Station, Rutgers University, New Brunswick, NJ 08903, on behalf of the IR-4 Project and the Agricultural Experiment Station of California propose to amend 40 CFR 180.399 to allow the use of iprodione as a postharvest dip or spray treatment on sweet cherries, with no change in the established tolerance of 20 ppm on sweet cherries. Tolerances for iprodione on sweet cherries from preharvest treatment were established in the consideration of PP2F2596, which see.

Conclusions

1. The proposed use is for postharvest treatment of cherries. The only use information on the label is that treatment is to be at the rate of 1 lb ai/100 gal. The use directions should be expanded to more clearly describe how the cherries are to be treated; i.e., the type of equipment to be used, the dipping

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time, the number of pounds of fruit to be treated with 100 gallons.

2. The nature of the residue in plants is adequately understood. The residue of concern is iprodione, its isomer and its metabolite.

3. Adequate enforcement methods are available. The method is available in PAM II.

4. We can draw no conclusion with regard to the residue data until the following questions are answered:

   a. More complete information concerning field sampling practices.

   b. Complete description of the postharvest treatment, with comparison to good commercial practices of washing and storage.

   c. Storage stability data reflecting the storage and handling of cherries as occurred in this trial are needed to demonstrate nondegradation or non-deterioration during the multiple step process of grinding, extracting, and analyzing the samples.

5. There is no reasonable expectation of residues of iprodione, its isomer or its metabolite in or on meat, milk, poultry, or eggs from the postharvest use proposed herein.

6. Codex and Mexican tolerances have not been established for iprodione residues. Canadian limits are for the same residues (i.e., iprodione, its isomer, and its metabolite) although at a much lower numerical limit than proposed herein. Thus, existing Canada/U.S. incompatibility is not changed by the proposed petition action. A Codex sheet is attached to our review.

Recommendation

We recommend against the proposed postharvest treatment of sweet cherries, for the reasons cited in Conclusions 4a, 4b, and 4c.

Detailed Considerations

Manufacture and Formulation

The manufacturing process and identity of impurities were reviewed by A. Rathman (PP8G2084, 3/2/79), which see. We have

previously concluded that no additional residue problems would arise from impurities.

The formulation proposed for use is Rovral^{R} Fungicide, containing 50% of the active ingredient iprodione.

Directions for Use (MRID No. 405410-00)

Sweet Cherries

Apply Rovral^{R} as an overall spray in sufficient water to obtain thorough coverage of bloom, foliage and/or fruit (20 to 400 gallons per acre by ground equipment and a minimum of 15 gallons per acre by air). Aerial applications are only recommended during bloom period.

The rates of Rovral^{R} per 100 gallons are based on a standard of 400 gallons per acre dilute spray for mature trees. For less than mature trees, apply the rate per 100 gallons until runoff. If less than 400 gallons of spray solution is applied to mature trees, refer to the rate per acre to insure that the proper amount of material is applied.

Brown Rot Blossom Blight: Apply first at early bloom (approximately 5% bloom). If conditions are favorable for disease development, apply again at full bloom and at petal fall.

Fruit Brown Rot: An application should be made whenever temperatures and moisture conditions favor disease infection in the 5-week period prior to harvest. If these conditions persist or reoccur, a second application should be made. This second application should be made no sooner than 7 days following the first preharvest application.

If Rovral^{R} is to be used also as a postharvest treatment, preharvest applications may only be made up to and including 1 day before harvest. If Rovral^{R} is not to be used as a post harvest treatment, preharvest applications may be made up to and including the day of harvest. Do not apply more than 2.0 lb of Rovral^{R} per acre per application. Do not make more than six applications of Rovral^{R} per season.

For postharvest disease control, apply Rovral^{R} once to the fruit as a dip or spray without rinsing. Use 2 lb Rovral^{R} per 100 gallons (1200 ppm active). Rovral^{R} may be tank mixed with DCNA products registered for use on sweet cherries.

The proposed use is for postharvest treatment of cherries. The only use information on the label is that treatment is to be at the rate of 1 lb ai/100 gal. The use directions should be expanded to more clearly describe how the cherries are to be treated; i.e., the type of equipment to be used, the dipping

time, the number of pounds of fruit to be treated with 100 gallons.

Do not graze animals in treated orchards. Do not feed cover crops grown in treated orchards to livestock. Note: Tolerances are established at 20 ppm under 40 CFR 180.200 for residues of 2,6-dichloro-4-nitroaniline in or on sweet cherries from pre- and postharvest applications.

Nature of the Residue

Plants

No new metabolism data are submitted on the metabolism of iprodione. The metabolism of iprodione in peach trees was considered in PP2F2596 (see R.B. Perfetti review of 5/13/82). In summary, the metabolism of iprodione in peach trees was similar to the metabolism in strawberries and wheat. Greater than 90% of the radiolabeled residue in peaches was identified as iprodione, its isomer and its metabolite. It was concluded that the metabolism of iprodione in stone fruit was adequately understood.

Since the petition of concern here adds a postharvest application to sweet cherries, it is apparent that the metabolism of iprodione in plants will not be affected. Thus, for the purposes of the use proposed herein, the nature of the residue is adequately understood; the residue of concern consists of iprodione, its isomer and its metabolite.

Animals

There are no livestock feed items associated with the production of sweet cherries and therefore the metabolism of iprodione in animals is not of concern herein.

Analytical Method (MRID No. 405410-01)

The analytical method for iprodione on sweet cherries is titled "RHONE-POULENC ANALYTICAL METHOD NO. 151 (Revised 1981), DETERMINATION OF RP 26019 AND ITS METABOLITES IN/ON STONE FRUIT AND NUT CROPS BY GLC AND TLC," (PDD Report No.:81/008, Ref. No.:81/234/BHL/AG). The method is claimed to be suitable for the analysis of iprodione in stone fruit and nut crops. In principle, iprodione residues in frozen, crushed, and blended plant tissues are extracted twice into acetone. Partition extraction involves liquid-liquid partition using ethyl acetate/methylene chloride, clean up on Florisil and analysis for iprodione residues with ^{63}Ni electron capture detection. The limit of detection is 0.05 ppm for iprodione, its isomer or its metabolite. Recovery of iprodione was 94 to 98% (at 1 to 20 ppm), and of RP 30228 was 90 to 91% (at 0.5 to 2.0 ppm), and of

RP 32490 was 89 to 97% (at 0.5 to 2.0 ppm).

A successful trial of the PAM II method was conducted on kiwifruit in conjunction with PP3F2810 (R. Perfetti, 3/21/83).

We conclude that adequate methods are available for enforcement purposes.

Magnitude of the Residue (MRID No. 405410-01)

One field trial was conducted by Rhone-Poulenc Ag Company (registrant for EPA Reg. No. 359-685) on behalf of the petitioner. The field trial occurred in Stockton, CA, under the auspices of the University of California at Davis. Bing cherries (in 4 replicates of 8 trees) were treated with 1 lb ai/A in 250 gal of spray per acre.

The petitioner reports analysis of four samples for each treatment practice, but it is not clear whether these samples represent one sample from each of the four replicated plots or four samples from one plot.

All values were corrected for recovery. Untreated cherries showed residues of <0.05 to 0.15 ppm iprodione and no detectable amounts (<0.05 ppm) of RP 30228 and RP 32490.

Cherries receiving five foliar applications of 1 lb ai/A showed 1.3 to 2.0 ppm iprodione and no detectable amounts (<0.05 ppm) of RP 30228 or RP 32490.

Two additional applications at 1 lb ai/A were made at 1 and 8 days prior to harvest. The harvest or sampling technique is not described (i.e., whether mechanical or hand picked, whether samples were obtained from the outer spray zone or whether obtained from underside low hanging branches).

The only information regarding the postharvest treatment is that both spray and dip treatments were made at 2 and 4 lb (Rovral^{R}, equivalent to 1 and 2 lb ai) per 100 gal 16 hours after last application. The manner or method of spraying or dipping is not described. We do not know if the equipment used and the practices followed reflect good commercial practice. We do not know whether the harvested cherries were washed before or after the spraying or dipping since the report is mute on this subject. The duration of dipping is not specified. Information to answer the above questions should be submitted.

Cherries receiving five foliar applications at 1 lb ai/A and one spray at either 1 or 2 lb ai/100 gal (1200 or 2400 ppm) showed 1.9 to 2.4 ppm iprodione. No detectable RP 30228 or RP 32490 (<0.05 ppm) was reported.

Cherries receiving five foliar applications at 1 lb ai/A and one dip at 1 lb ai/100 gal (1200 ppm) showed 2.2 to 3.3 ppm iprodione and no detectable RP 30228 or RP 32490. When the concentration of the dip solution was 2 lb ai/100 gal (2400 ppm), residues of iprodione were 3.8 to 5.7 ppm, and detectable residues of RP 32490 were at 0.05 ppm.

No storage residue data are available for this trial. Samples were sprayed or dipped and frozen for about 5 months. During this interval, samples were "ground" (the meaning of "ground" is unclear) then 1 week later were extracted, and then 1 month later the extracts were analyzed. We are concerned that residues of iprodione (and its isomer and metabolite) may be degraded or otherwise lost during the period when the sample is "ground" and then extracted 1 week later.

The petitioner should submit storage residue data indicating the stability of iprodione, its isomer, and its metabolite under the conditions occurring during this study.

Magnitude of the Residue in Animals

Since there are no pertinent animal feed items derived from sweet cherries, we are not concerned with the possibility of residues in meat, milk, poultry, or eggs.

Other Considerations

Reduction of Residues

The petitioner contends that residues of iprodione are unlikely to exceed the proposed tolerance, and therefore methods for removing the residues are unnecessary.

International Tolerances

An International Residue Limit Status sheet is attached. The residue for Codex purposes consists of iprodione per se; however, there is no proposal at or above Step 6 and compatibility with Codex is not an issue. There are no Mexican limits for iprodione on sweet cherries. The Canadian limit of 5 ppm on cherries is for residues of iprodione, its isomer, and its metabolite.

In consideration of the current tolerance incompatibility between Canadian and U.S. tolerances, the proposed action (i.e., postharvest treatment without changing U.S. tolerance) would not increase or decrease the current incompatibility.

cc: RF, PP8E3619, RWCook, PMSD (ISB), circ (7)
TS769:RCB:HED:RWCook:5/16/88:6/23/88:Rm 810H:557-7324
RDI:Section Head:RSQuick:7/7/88:RDSchmitt:7/7/88
53416:I:Cook:C.Disk:KENCO:6/24/88:DD:VO:EK:DD
Kenco typing corrected by R. W. Cook: 6/29/88:7/7/88

Final Rules 5/3/89

INTERNATIONAL RESIDUE LIMIT STATUS

CHEMICAL Iprodione

CODEX NO. 111

CODEX STATUS:

☐ No Codex Proposal
Step 6 or above (on cherries)

Residue(if Step 8): _____

Iprodione per se

Crop(s)	Limit (mg/kg)

PROPOSED U.S. TOLERANCES:

Petition No. 8E3619

RCB Reviewer RWCook

Residue: Iprodione, its isomer and its metabolite (per 40 CFR 180.39

Crop(s)	Limit (mg/kg)
Cherries (sweet + sour) (Pre + Post harvest)	20 ppm

CANADIAN LIMITS:

☐ No Canadian limit

Residue: Iprodione and metabolites 3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,4-dioxoimadazolidine-1-carboxamide and 3-(3,5-dichlorophenyl)-2,4-dioxoimadazolidine-1-carboxamide

Crop(s)	Limit (mg/kg)
Cherries	5

MEXICAN LIMITS:

☑ No Mexican limit

Residue: _____

Crop(s)	Limit (mg/kg)

(8)

NOTES:
Currently, tolerances are 20 ppm for preharvest use. Currant petition adds post harvest use.

Form revised 1986